WildFood

WildFood Project

Eating the wild: Improving the value-chain of Mediterranean Wild Food Products (WFP)

Report on actors' characterization

Lead by:	**UNIPD**
Type of document	**Deliverable 1.2**
Due date of deliverable:	**30.05.2021**
Dissemination level:	**Public**

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Reference

Vidale, E., Andrighetto N., Pettenella, D. (2022). Report on actors' characterization. WildFood Project. PRIMA Foundation project.

Executive summary

The identification and characterization of the primary stakeholders of the wild product supply chains is the main activity carried out by task 1.2. The identification and characterization of companies is designed to provide useful information to describe the individual supply chains of the project's target wild products, such as single species of truffles, pine nuts, acorns and medicinal herbs.

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ERA-LEARN has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 811171

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Summary

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1. The stakeholder of the wild food value chain: concept and identification

WildFood project aims to define and analyze the factors that can determine added value in each ring of the supply chain, while comparing the effect of different policies on the wild food chains. In order to achieve these objectives, task 1.2 aims to develop a map of economic actors and the potential non-economic ones that characterize each national supply chain of the target wild food products (WFP). The chapter will present the concept of stakeholders, their possible role in the WFPs value chains and the protocol used to characterize stakeholders involved in the research.

1.1. Stakeholders' involvement

The attention of civil society and public authorities on the forest sector has increased in recent decades, due to the growing concern for the health of forest ecosystems (FAO and UNEP, 2020) while are still limited the stakeholder engagement and analysis applied to wild food value chains. The literature review on forestry sector suggests considering the relevant stakeholders' visions, which can arise from the involvement of a multitude of direct and indirect stakeholders (Lazdinis, 2019). In fact, different stakeholders can have totally divergent visions and opinions about the prioritization of the various services or assets that the forests can provide (Sandström *et al.*, 2016). For this reason, viable and efficient policies, based on efficient and sustainable use of forest resources, should consider the participation of civil society, through an effective involvement of all actors that can be affected by forest management (FAO, 2018, Bruna Garcia and Marey-Pérez, 2014). Also Borrini-Feyerabend (1997) suggested that forest policies should be based on the diversity and complementarity of stakeholder views, balancing their multiple interests and establishing a coherent vision for the management of natural resources, considering all accountable rights of affected stakeholders. In other terms, stakeholders' involvement in the description of the wild food chain represents a key element carry out this task and it also to facilitate the exchange of information, which should increase social acceptance of the potential decisions the policy makers or the economic actors will propose or adopt.

Generally, the stakeholders' participation can be quite different; some can have a passive attitude, in which stakeholders are informed only of the position stated by other actors, other stakeholders have more interactive attitude, where they are protagonists of discussion and take may take some specific responsibilities in case the discussion is transformed into a decision process. Therefore, participation may have different forms which range from open meetings, questionnaires up to deliberative processes where all stakeholders can have a key role in the decision processes (Higgs *et al.* 2008). WildFood project can be used to test the different degree of participation in the design of a new policy proposal on specific topic related to the target wild food products reported in the Deliverable 1.1. The involvement of the stakeholders may have different outputs, because WFPs deliver socio-economic benefits to a wide range of actors along the entire value chain, like the economic stakeholders (i.e., from forest owners to retailers), and the non-economic stakeholders like recreational pickers (Sheppard *et al*. 2020). Policies developed with the stakeholders' involvement can reduce the perceived risk of overexploiation or facilitate the integration of the supply chain actors according to their proposal to overcome obstacles or fights between different positions on specific themes (Wolfslehner *et al*. 2019).

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1.2. Wild food supply chain: theory and functional indicators

Wild food supply chain may be simple or complex, depending on the number of economic actors involved in delivering the final product to the end-user. While the simpler wild food chain involves a producer and a consumer dealing directly in the exchange of the products through a monetary transaction, there are more articulated and complex supply chains that relay on several economic actors competing or collaborating one with each other for supplying the demanded products, commonly grouped within the concept of "*supply chain*". Despite the fact that there were some efforts in promoting the supply chain studies in forest and wild food production, much of the theoretical background and the concept development beyond of "*supply chain*" were delivered by industrial research. As usual in research, also in the industrial studies there is no convergence on a single definition, though a lot of effort has been made in order to achieve a consensus. Table 1 reports two definitions of "*supply chain*" commonly quoted in literature.

Table 1: Supply chain: definitions

Definition	Source
Supply chain is a system whose constituent parts include material suppliers, production facilities, distribution services and customers linked together via the feed forward flow of materials and the feedback flow of information.	Gunasekaran (2001) based on Steven (1989)
The supply chain is the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer.	Stevenson and Spring (2007) based on Christopher (1998)

Gunasekaran (2001) is probably among the few authors that reported a simple definition of supply chain, in which the main actors have been grouped in three categories: a) material suppliers, b) production facilities, and c) distribution service. Customers are considered both an actor of the supply chain and a provider of information. Stevenson and Spring (2007) recall to the supply chain definition suggested by Christopher (1998), which focuses more on the concept of "network of organizations" interlinked one to the other with the specific mission of delivering a product or a service to the end-users. The two definitions differ significantly only on the interpretation of the customer, but both hold the main attributes that characterized a supply chain like a) the concept of economic actors organized in a network, b) the information flow along the chain, c) a coordination of the economic actors, within a common objective related to delivery of a product or a service. The wild food supply chain does not differ from any other supply chains, such as those in the agricultural or industrial sectors, except for the presence of three particular economic actors at the beginning of the supply chain, such as the forest owner, the professional picker of wild food and non-professional ones that are all considered wild food producers in forest.

The supply chain concept is commonly used in different sectors, though in forest literature there are a large variety of terminologies addressing the same concept. The concept of "*supply chain*" has been commonly expressed erroneously in other terminologies like "*marketing chains*", "*trade chain*", "*commodity chain*" and "*value chain*"; this last is probably the most known term, among the others, introduced firstly by Porter (1985). While supply chain describes the physical flow of goods, information, production and distribution of the final products to the end-user, value chain describes the formation of the overall value of the products, hence considering also the pre- and post-production services provided by the economic actors of the chain, and for some extent the indirect value generated by the chain along its path to the end-user. Kaplinsky and Morris (2000) defined the concept of value chain as "*the full range of activities, which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final*

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disposal after use", which is slightly different description compared to the supply chain concept. Forest studies have been predominantly used the value chain concept because it is more open to the evaluation of the socio-political context (Marshall, Schreckenberg, & Newton, 2006; te Velde et al., 2006). Due to this consuetudinary approach, we will consider the socio-political dimension of the supply chain in the Deliverable 3.1 and 4.1, while the Deliverable 1.3 will study in deep the physical supply chain that move wild foods from forest to the end users.

Table 2: Supply chain management: definitions

Definition	Source
*"**Supply Chain Management** is the integrated **planning**, **implementation**, **coordination** and **control** of all business processes and activities necessary to **produce** and **deliver**, as efficiently as possible, products that satisfy **market** requirements"*	(Van Der Vorst, Da Silva, & Trienekens, 2007) based on Christopher (1999)
*"**Supply Chain Management** encompasses the **planning** and **management** of all activities involved in **sourcing** and **procurement**, **conversion**, and all **logistics** management activities. Importantly, it also includes **coordination** and **collaboration** with channel partners, which can be **suppliers**, **intermediaries**, **third-party service providers**, and **customers**. In essence, Supply Chain Management integrates supply and demand management within and across companies"*	Gibson *et al.* (2005) based on Council of Logistics Management (2003)

The concept of supply or value chain is generally followed by the notion of "Supply Chain Management". While the supply chain is simply the structure of the material and information flows between the two ends of the market, the supply chain management has been deeply discussed in literature because it refers to the actions that all the economic actors involved in the chain need to follow in order to deliver the product to the end user in the most efficient way.

Table 3: Supply chain indicators in the supply chain phases

Phase	Performance measure	
	Financial	**Non-Financial**
Plan	Return on investment **Selling price of good and services**	Labour efficiency Perceived value of product Product development cycle time, Bidding management cycle time Compliance to regulations Forecasting accuracy Supply chain response time
Source	Scrap/obsolescence cost Inventory cost **Selling price of goods and service**	Labour efficiency Product development time Lead time for procurement including supplier development time Delivery reliability Product and service variety
Make	Scrap/obsolescence cost Overhead cost Inventory cost **Selling price of goods and service** Value added	Labour efficiency Conformance to specifications Capacity utilization Lead-time for manufacturing Production flexibility Process cycle time Accuracy of scheduling Product and service variety Value added
Deliver	Overhead cost **Value added** Inventory cost Stock-out cost Transportation cost Warranty cost	Labour efficiency Delivery reliability Perceived value of product Value added Product and service variety Perceived quality

Source: (Gunasekaran and Kobu, 2007); in bold the indicators we addressed in the NWFP supply chain analysis.

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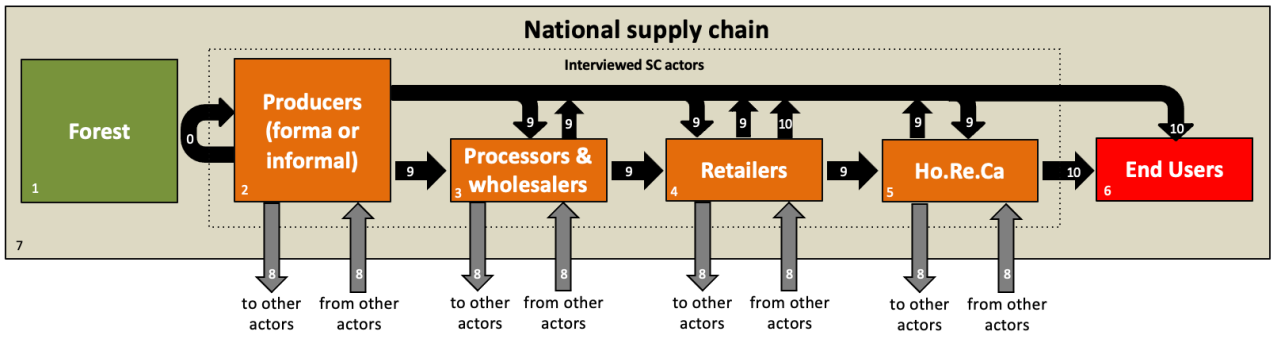
Table 2 reports the main definition of supply chain management, where both consider similar attributes of the chain management like a) the planning, b) implementation, c) coordination of the all activities needed to supply the requested commodity to the end-user. The concept of "supply chain management" has been introduced primarily to measure the performance of the supply chain as fundamental step to achieve efficiency in the delivery of a product. Among all indicators, selling price and total delivery cost are probably the most common indicators used to measure the efficiency of the supply chain and of its management (Beamon, 1999), despite it has rarely been used in literature, probably due to difficulties to run direct survey among the companies that compose the supply chain. The difference between the final price and the supply cost corresponds to the net supply chain revenue before the taxes. Other authors studied the supply chain cost in relation to qualitative parameter as well other financial and non-financial indicators used to measure the supply chain performances as reported by Gunasekaran and Kobu (2007) who suggests to classify the indicators according the main phases of the supply chain management process such as the planning, the material sourcing, the production of the products and the final delivery to the end-user (see Table 3). Among the key indicators that can be used along the whole supply chain, selling price is probably the most useful to describe the overall supply chain performance as well to study new policies to enhance the overall efficiency of the supply chain. Other indicators are also important but are less useful in the wild food supply chains where the products collected from the forest are often transferred to the end users without any processing activity. As reported in other similar studies (Vidale, et al. 2016), the simple description of the price evolution along the supply chain can highlight problems and potential solution for increasing its efficiency, even though, the assess to information may be challenging to pursuit and statistical representativeness may be almost impossible to reach.

1.3. Stakeholders' identification

Task 1.2 aims to develop a map of the economic actors of WFP in order to identify and analyze the factors that can create added value in their value chains. As part of this task, it has been decided to consult, through a specific questionnaire, only the **primary stakeholders,** while the non-economic players will be involved in the policy recommendation on the activities of task 3.2. The primary stakeholders are the actors who are directly involved in the supply chain. Examples of primary stakeholders in WFPs sector are: collectors, producers, processors, traders or distributors. Unlike the primary stakeholders, t**he secondary ones** are the actors that can influence or affect indirectly the value created by the supply chain, influencing the price on specific economic actors or the overall added value creation through their influence on the policy makers. Examples of secondary stakeholders are; trade unions, media groups, NGOs, collectors' associations, local governments.

Figure 1: Theorical supply chain of wild food products



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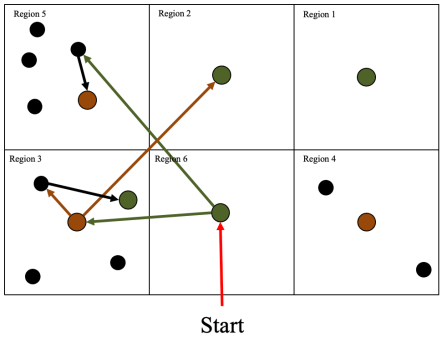
Note: 0: action of wild harvesting by producers that collect the wild food in the forests; 1: forests areas; 2: producers both formal companies with VAT code or informal commercial producers; 3: processor or wholesalers that purchase raw materials for re-selling or for further processing; 4: retailers that sell to the end users or other companies of the supply chain like hotels, restaurants or caterings; 5: Ho.Re.Ca. hotels, restaurants and caterings; 6: end users that purchase the raw or processed products; 7: National boundaries of the supply chain; 8 import or export activity to actors included end users of third countries (i.e. tourists or private user); 9: B to B economic relationships; 10: B to C economic relationships. The arrows directions of arrow 9 and 10 represent the product flow.

Figure 2: Snaw-ball sampling



Note: green dots: restaurants; brown dots: wholesalers; black dots: producers.

So far, only actors that are directly involved in the supply chain can provide economic information like product prices or company turnover. Figure 1 describes a theoretical national supply chain of wild food product and the related target actors that will be interviewed (see actors in orange boxes). Companies will be selected through the chamber of commerce databases, whenever there is the possibility to access to the data by the project partners, or through a snow-ball sampling methodology, in case there are not direct access to the databases. Some project partners have difficulties to have reliable contacts of the key economic players of the supply chain, due to the fact that some companies are not included in national company registers. The snowball sampling is a non-probabilistic sampling technique used when members of target population are difficult to locate; through a 'name generator' process the researcher obtains names of potential interviews from first-round interviewees. At the end of an interview, the respondent is asked if he/she could provide contacts for other companies that do similar work in the region. There are several ways to phrase this key question, i.e. "could you tell me the name or contact person of other companies in the region/this municipality/province that work with the same products?". In this way it should be possible to build up the list of actors in 2 or 3 rounds (see Figure 2).

WP1 team, in coordination with WP3 and WP4 team designed a common questionnaire applied to each key wild food supply chain in order to identify the key stakeholders of each supply chain. The information will be collected by a questionnaire, on-line or CATI, that contains three main sections:

- Economic section, in which we will ask few questions related company basic info, like employee, company main activities and produced products.
- Marketing section will focus more on marketing strategy, certification, standards and other marketing tool applied by the interviewed company.
- And a business model section with a focus on the structure and design of the company.

The questionnaire has been tested by WP1 team and then passed to all the other project participants. The questionnaires have been translated in local language. An example of the common questionnaire, then adapted to each key products, is available at the following link: https://docs.google.com/forms/d/e/1FAIpQLSdHEDedYMlOphqGe1G6zUSEj28EFLu5rVn6jy2XjRhPNYki-A/viewform?usp=sf_link. The questionnaire has been designed for collecting the data directly on line or being printed, according to the way it is more suitable for the interviewed each key stakeholder (companies). The stakeholders or respondent has been selected according to an initial list of known companies collected by WP3 team, and integrated through a snow-ball sampling approach, The tentative target of respondents are:

- 6 (up to 10) producers (formal or informal pickers, forest owner or farmer)
- 2 (up to 6) wholesalers and processors (companies that buy, process and resell raw or final product)
- 2 (up to 8) retailers
- 2 (up to 8) Ho.Re.Ca. (hotel, restaurants and catering)

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2. Primary stakeholder involved in the data collection

The main activity of task 1.2 was the identification and characterization of the stakeholders that participate at the project data collection campaign. The number and the main typology of interviewed companies are reported in Table 1.

Table 4: primary stakeholder involved in the data collection

Partner	Product	Producers [n]	Wholesalers [n]	Retailers [n]	Ho.Re.Ca. [n]	Total
Italy	Summer truffle	11	13	5	4	33
Slovenia	Summer truffle	2	1			3
Portugal	Pine nuts	9	3	1	2	15
Spain	Pine nuts	4	2	5	5	16
Italy	Pine nuts	6	2			8
Tunisia	Pine nuts					
Spain	Black truffle	5	1			6
Portugal	Pennyroyal	7	1	2	2	12
Portugal	Acorn	7	5	5	4	21
Tunisia	Rosemary					

The stakeholders stated a set of information useful for WP1, 3 and 4, such as main characteristic of the company, the activity and time organization, the marketing tool adopted, some information about the business model and a set of key information about economic volume and value of their activity as well the selling price of the main wild product produced or commercialized by each company interviewed. The stakeholders vary from individual activity to corporate organization. The focus to the national supply chain let us concentrate to national stakeholder, while international actors (as EU policy officers) and non-economic actors, like political player (as legislators, governors) or public sector agencies and nonprofit organizations (i.e. NGOs, foundations) were not interviewed.

2.1. Stakeholders' characterization

Each stakeholder was characterized by collecting a set of information. The main information collected refers to the type of company and how the company itself carries out its work and organizes it over time. Therefore, information such as activities carried out within the company and the distribution of the time dedicated to each individual activity allow us to understand the structure of the company, as well as its location within the production chain. Two specific sections relating to marketing tools and business model organization, respectively necessary for the development of tasks 3.1 and 4.1, provide very useful information to understand the level of evolution of companies compared to other companies in the primary sector. Other sections of the questionnaire have been added in order to understand the main issues related to the production and marketing of wild products, as well as economic information, such as company turnover and prices of specific products, as useful information for studying the supply chain in every single link that composes it. The main results of the stakeholder characterization will be reported in deliverable 1.3.

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The Partnership for Research and Innovation in the Mediterranean Area will devise new R&I approaches to improve water availability and sustainable agriculture production in a region heavily distressed by climate change, urbanisation and population growth.

The PRIMA programme is an Art.185 initiative supported and funded under Horizon 2020, the European Union's Framework Programme for Research and Innovation.